NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Raleigh Regional Office
County: Northampton
NC Facility ID: 6600016
Inspector's Name: Will Wike
Date of Last Inspection: 08/24/2017
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Georgia-Pacific Chemicals LLC - Conway

Facility Address:
Georgia-Pacific Chemicals LLC - Conway
200 Ampac Road
Conway, NC 27820

SIC: 2821 / Plastics Materials and Resins
NAICS: 325211 / Plastics Material and Resin Manufacturing

Facility Classification: Before: Title V **After:**
Fee Classification: Before: Title V **After:**

Permit Applicability (this application only)

SIP: 02D .0503, .0515, 0.516, 0.521, .0614, .0949, and .1806
NSPS: 02D. 0524 (40 CFR 60 Subpart Dc)
NESHAP: 40 CFR 63, Subparts F, G, H, UU. OO, DDDDD, and ZZZZ
PSD: Not Applicable
PSD Avoidance: 02Q .0317 (for NOx)
NC Toxics: 02D .1111
112(r): 02D .2100
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Timothy Riddick Site Environmental Coordinator (252) 585-3819 PO Box 368 Conway, NC 27820 tariddic@gapac.com	Ronald Walls Plant Manager (252) 585-3840 PO Box 368 Conway, NC 27820	Timothy Riddick Site Environmental Coordinator (252) 585-3819 PO Box 368 Conway, NC 27820 tariddic@gapac.com

Application Data

Application Number: 6600016.17A
Date Received: 06/29/2017
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 04243/T24
Existing Permit Issue Date: 04/01/2013
Existing Permit Expiration Date: 03/31/2018

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2016	0.0500	8.70	75.99	21.06	13.46	78.21	54.67 [Methanol (methyl alcohol)]
2015	0.0500	8.92	85.11	21.75	15.52	86.55	60.37 [Methanol (methyl alcohol)]
2014	0.0300	7.32	83.42	20.65	15.38	83.27	56.12 [Methanol (methyl alcohol)]
2013	0.0600	7.53	84.97	19.21	15.55	85.07	57.48 [Methanol (methyl alcohol)]
2012	0.0700	7.41	76.49	18.87	13.99	76.70	51.80 [Methanol (methyl alcohol)]

Review Engineer: Eric Crump

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 04243/T25
Permit Issue Date:
Permit Expiration Date:

I. Purpose of Application

Georgia-Pacific Chemicals LLC - Conway (GP) is a formaldehyde and resin manufacturing plant located in Conway, Northampton County, North Carolina that operates under Title V Permit No. 04243T24 with an expiration date of March 31, 2018. GP submitted a timely application on June 29, 2017 or at least nine months prior to the original expiration date for renewal; therefore, the existing permit will remain in effect until this renewal application is processed.

II. Facility Description

The GP facility produces aqueous formaldehyde through a catalyzed reaction between methanol and oxygen (in air). Formaldehyde solutions produced in various concentrations are either sold or used within the plant to produce resins.

The resin production process produces liquid urea-formaldehyde (UF) resins, melamine/UF (MUF), melamine-formaldehyde (MF), phenol-formaldehyde (PF) resins, PF flammable resins, and PF specialty resins in batch operations. Six batch reactor vessels are steam-heated. These resins can then be:

- sold and shipped directly to customers in rail tankers or containers;
- post-processed into RESI-MIX®, a specialized resin; or
- transferred to a spray dry process in which liquid PF resin is sprayed into a heated air stream and run through several cyclones, producing a dried resin powder.

III. Application Chronology

April 1, 2013	Title V Permit No. 04243T24 issued to GP.
June 11, 2013	Division of Air Quality (DAQ) receives letter dated June 7, 2013 from GP stating that the February 2013 monthly ductwork inspections were inadvertently missed for the two extender silo bin vents. The letter outlined actions taken by Georgia-Pacific to ensure future compliance with monitoring and recordkeeping requirements.
July 31, 2013	Notice of Deficiency issued to GP for missing February 2013 monthly ductwork inspections.
September 17, 2013	Compliance inspection conducted by Will Wike, Raleigh Regional Office (RRO). Plant appeared to be operating in compliance with all permit requirements.
September 24, 2014	Compliance inspection conducted by Will Wike, RRO. Plant appeared to be operating in compliance with all permit requirements.
October 8, 2014	The U.S. Environmental Protection Agency (EPA) finalizes amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Manufacture of Amino/Phenolic Resins, also known as the Resin MACT standard (79 FR 60898).
July 1, 2015	Compliance inspection conducted by Will Wike, RRO. Plant appeared to be operating in compliance with all permit requirements.

December 7, 2015	DAQ sends letter to GP requesting details of a December 4, 2015 accidental release of ammonia solution at the facility. A response by January 8, 2016 was requested.
December 11, 2015	DAQ receives 502(b)(10) notification from GP dated December 8, 2015 for replacement of a formaldehyde convertor with a like-kind converter.
December 28, 2015	DAQ receives GP letter dated December 28, 2015 providing details of an accidental release of ammonia solution. GP concluded the event did not result in a catastrophic release of a regulated substance, and did not trigger incident investigation requirements of 40 CFR section 68.81.
April 7, 2016	DAQ receives 502(b)(10) notification from GP dated March 30, 2016 for replacement of the facility's absorption chiller with a like-kind new chiller.
April 14, 2016	Email from Brian Bland, DAQ sent to Patrick Butler and Tim Riddick of GP stating the stating the 502(b)(10) notification for the chiller replacement was processed as an applicability determination. The replacement did not require 502(b)(10) notification nor a permit modification.
August 3, 2016	Compliance inspection conducted by Will Wike, RRO. Plant appeared to be operating in compliance with all permit requirements.
August 9, 2016	DAQ receives email from GP requesting permit applicability determination regarding use of a radioisotope tracer to measure residence time and material distribution in a formaldehyde reactor.
August 18, 2016	Letter from Mark Cuilla of DAQ to Tim Riddick of GP stating no permit modification is required for the radioisotope diagnostic testing. GP advised to notify NC Department of Health and Human Services (DHHS), and to comply with DHHS requirements during testing.
February 13, 2017	DAQ responds to GP request of January 24, 2017, and grants GP a one-year extension of 40 CFR 63, Subpart OOO, Manufacture of Amino/Phenolic Resins (Resin MACT) residual risk and technology review compliance date to October 9, 2018.
June 6, 2017	DAQ receives 502(b)(10) notification from GP dated May 31, 2017 for replacement of the formaldehyde manufacturing facility 's heat transfer fluid condenser with a like-kind condenser.
June 7, 2017	Email from Brian Bland of DAQ sent to GP stating the 502(b)(10) notification for condenser replacement was processed as an applicability determination. The replacement did not require 502(b)(10) notification nor a permit modification.
June 30, 2017	Letter from DAQ sent to GP documenting air permit application 6600016.17A was received and deemed complete as of June 29, 2017.
July 18, 2017	112(r) compliance inspection of GP Risk Management Program (RMP)

	conducted by Matthew Mahler, Raleigh Regional Office. The facility was found to have a complete and up-to-date RMP, demonstrating procedural compliance with the 112(r) regulation.
August 24, 2017	Compliance inspection conducted by Will Wike, RRO. Plant appeared to be operating in compliance with all permit requirements.
April 13, 2018	DAQ receives 502(b)(10) notification dated April 9, 2018 from Ronald Walls of GP describing addition of a new vapor balance line between the ammonia storage tank and the tanker truck unloading rack.
April 13, 2018	Email from Brian Bland of DAQ sent to Timothy Riddick of GP stating the 502(b)(10) notification for new vapor balance line was processed as an applicability determination. The new vapor balance line did not require a 502(b)(10) notification nor a permit modification.
March 8, 2018	GP submits an updated Notification of Compliance Status for the Resin MACT to DAQ to comply with notification requirements as a result of the October 2014 Resin MACT amendments.
August 27, 2018	Initial draft GP permit sent to Mark Cuilla of DAQ for review.
September 17, 2018	Comments on initial draft permit provided by Mark Cuilla of DAQ.
September 19, 2018	Compliance inspection conducted by Steve Carr, RRO. Plant appeared to be operating in compliance with all permit requirements.
October 11, 2018	DAQ sends draft permit to Timothy Riddick of GP and Steve Carr of RRO for review.
October 15, 2018	The U.S. EPA finalizes amendments to the Resin MACT standard (83 FR 51842).
October 15, 2018	GP submits a Precompliance Report in accordance with the October 2018 Resin MACT standard amendments, stating how they intend to comply with the new requirements for back-end continuous process vents.
October 23, 2018	Comments on draft permit received from Steve Carr, RRO.
November 2, 2018	Comments on draft permit received from Timothy Riddick of GP.
November 16, 2018	Draft permit resubmitted to Mark Cuilla, DAQ for review with changes reflecting revisions to the Resin MACT and 40 CFR 63 Subpart DDDDD, National Emission Standards for Hazardous Air Pollutant Emissions for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters
January 3, 2018	Comments on revised draft permit provided by Mark Cuilla of DAQ.

IV. Permit Modifications and Title V Equipment Editor Discussion

The following changes were made to Georgia-Pacific Chemicals LLC, Conway, NC Air Permit No. 04243T24:

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
Cover and throughout	--	Cover and throughout	--	• Updated all dates and permit revision numbers. • Changed citations of 15A NCAC 2D to 15A NCAC 02D • Changed citations of 15A NCAC 2Q to 15A NCAC 02Q
--	Insignificant Activities List	--	Insignificant Activities List	• Added sources, deleted sources, and modified descriptions and ID numbers to multiple sources • Added link to DAQ "Specific Permit Conditions Regulatory Guide"
3	1	3	1	Added "Resin loading racks" (ID No. ES-RLR) to table of permitted emission sources
3	1	4	1	Added control device ID No. CD-4.6, "Cartridge filter (2,712 square feet of media area)" to emission source ID No. ES4.6, "Batch non-reactor vessel, mix/blend tank K6" in table of permitted emission sources
5	2.1 A	7	2.1 A	• Removed references to fuel oil for boiler (ID No. ES-B2) in table • Changed "day" to "days" in table
8	2.1 A.6.a	9	2.1 A.6.a	Deleted the words "/propane and/or distillate oil"
8	2.1 A.6.b	--	--	Deleted monitoring/recordkeeping requirement to maintain fuel/distillate oil receipts
8	2.1 A.6.c	10	2.1 A.6.b	Changed numbering of reporting requirement for temporary boiler (ID No. ES-B2)
9	2.1 B.3	11	--	Removed avoidance conditions placed on emergency generators for Prevention of Significant Deterioration
11	2.1 C.2.c	13-14	2.1 C.2.c	Revised subparagraphs to improve clarity and ease of reading
13	2.1 D.2.c	14	2.1 D.2.c	Revised subparagraphs to improve clarity and ease of reading
14	2.1 E	15	2.1 E	Added reference to location of compliance assurance monitoring language in permit
15	2.1 E.3.c	17	2.1 E.3.c	Revised subparagraphs to improve clarity and ease of reading
16	2.1 E.4	32-33	2.3 B	Moved compliance assurance monitoring requirements to Section 2.3 of the permit
17	2.1 F.2	32	2.3 A.2	Updated risk management program requirements language, and moved language to Section 2.3 of the permit

Previous Permit		New Permit		Description of Changes
Page No.	**Section**	**Page No.**	**Section**	
18-22	2.2 A	19-24	2.2 A	Changed "Heat exchange system (ID No. HX1)" to "Cooling Tower HX1 (ID No. ES-T1A)"
19	2.2 A.1.d.iii	20-21	2.2 A.1.d.iii	• Added requirements for establishing operation ranges for catalytic oxidizer (ID No. CD-2A) to control emissions during high and low plant production scenarios. • Added table establishing current operation ranges and minimum temperature limits for catalytic oxidizer
23-26	2.2 B	25-28	2.2 B	Changed "Heat exchange system (ID No. HX2)" to "Cooling Tower HX2 (ID No. ES-T3)"
25	2.2 B.1.e.v	27	2.2 B.1.e.v	Changed requirement to "develop a startup, shutdown and maintenance plan" to a requirement to "maintain malfunction records for affected units, sources, and equipment"
--	--	27	2.2 B.1.e.ix	Added requirement to equip pressure relief devices with device(s) or a system that complies with pressure relief management requirements
26	2.2 B.1.g.iii	28	2.2 B.1.g.iii	Changed "Startup, Shutdown and Malfunction Reports to "Reports of Malfunctions"
29	2.2 D.1	--	--	Removed "Work Practices for Sources of Volatile Organic Compounds" from permit
29	2.2 D.2	31	2.2 D.1	Changed numbering of "Control and Prohibition of Odorous Emissions" requirement
--	--	32-33	2.3	Added Section 3, "Other Applicable Requirements" (contains risk management program and compliance assurance monitoring requirements)
30-39	3	34-43	3	Updated General Conditions to version 5.3, 8/21/2018

The following changes were made to the Title V Equipment Editor:

- Added source ID No. I-FL, "Formaldehyde loading operations – East Load Rack"
- Added source ID No. I-FA, "Formic acid tank (2,610-gallon capacity)"
- Added control device ID No. CD-4.6, "Cartridge filter (2,712 square feet of media area)"
- Modified description and ID number of Container filling (ID No. I-CF) to "Resin loading operations – container loading" (ID No. I-RCL)
- Modified description and ID number of Resin loading racks Nos. 1, 2, 3, 5, and 6 (ID No. I-RLR) to "Resin Loading Racks - East Load Rack, West Load Rack, Reactor Load Rack, and Railcar Load Rack" (ID No. ES-RLR)

- Modified description of PF resin tanks (27,678-gallon capacity) (ID Nos. ICT-1, ICT-2, ISD-1, and ISD-2) to "PF resin tank (27,663-gallon capacity)"
- Modified description of PF resin tanks (25,000-gallon capacity) (ID Nos. I-P1, I-P2, and I-P3) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of PF resin tank (25,785-gallon capacity) (ID Nos. I-P4) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of RF resin tanks (22,500-gallon capacity) (ID Nos. I-P5 and I-P6) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of Process water tank (22,500-gallon capacity) (ID Nos. I-P7) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of PF resin tank (25,000-gallon capacity) (ID Nos. I-P8) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of PF resin tanks (20,600-gallon capacity) (ID Nos. I-P9 through I-P12) to "PF RESI-MIX resin tank (25,908-gallon capacity)"
- Modified description of PF resin tanks (22,500-gallon capacity) (ID Nos. I-P13 through I-P15 and I-P17) to "PF resin tank (22,669-gallon capacity)"
- Modified description of PF resin tanks (28,748-gallon capacity) (ID Nos. I-P19 through I-P23) to "PF resin tank (22,669-gallon capacity)"
- Modified description of Process water tank (22,386-gallon capacity) (ID No. I-P24) to "PF resin tank (22,669-gallon capacity)"
- Modified description of PF resin tanks (28,748-gallon capacity) (ID Nos. I-P25 through I-P27) to "PF resin tank (22,669-gallon capacity)"
- Modified description of Process water tank (27,500-gallon capacity) (ID No. I-P28) to "PF resin tank (22,669-gallon capacity)"
- Modified description and ID numbers of UF resin tanks (ID Nos. I-U-1 through I-U-3) to "PF flammable resin tank (22,443-gallon capacity)", (ID Nos. I-U1 through I-U3)
- Modified description and ID numbers of UF resin tanks (ID Nos. I-U-4 through I-U-10) to "UF resin tank (22,443-gallon capacity)", (ID Nos. I-U4 through I-U10)
- Modified description of Methyl ethyl ketone tank (10,400-gallon capacity) (ID No. I-A2) to "Process water tank (9,910-gallon capacity)"
- Modified description and ID numbers of PF resin tanks (22,500-gallon capacity) (ID Nos. I-N-1 through I-N-7) to "PF resin tank (22,559-gallon capacity)" (ID Nos. I-N1 through I-N7)
- Modified description and ID numbers of Phenol tanks (22,500-gallon capacity) (ID Nos. I-R-1 and I-R-2) to "Phenol tank (22,540-gallon capacity)" (ID Nos. I-R1 and I-R2)
- Modified description of Cresylic acid tank (22,500-gallon capacity) (ID No. I-R3) to "Cresylic acid tank (22,669-gallon capacity)"
- Modified description and ID number of Phenol tank (22,548-gallon capacity) (ID Nos. I-R-5) to "Phenol tank (22,540-gallon capacity)" (ID Nos. I-R5)
- Modified description of Urea solution tank (19,000-gallon capacity) (ID Nos. I-R7) to "Phenol tank (19,431-gallon capacity)"
- Modified description and ID number of Urea formaldehyde concentrate tank (29,000-gallon capacity) (ID Nos. I-R-8) to "Urea formaldehyde concentrate tank (25,379-gallon capacity)" (ID Nos. I-R8)
- Modified description and ID number of Phenol tank (22,548-gallon capacity) (ID Nos. I-R-10) to "Phenol tank (22,540-gallon capacity)" (ID Nos. I-R10)
- Modified description and ID numbers of PF resin tanks (10,000-gallon capacity) (ID Nos. I-S-1 through I-S-5, I-S-7 through I-S-9, I-S-11, and I-S-12) to "PF flammable resin tank (9,910-gallon capacity)", (ID Nos. I-S1 through I-S5, I-S7 through I-S9, I-S11, and I-S12)
- Modified description of Caustic water tank (10,000-gallon capacity) (ID Nos. I-S6) to "PF flammable resin tank (9,910-gallon capacity)"

- Modified description and ID numbers of Urea solution tank (10,000-gallon capacity) (ID Nos. I-S-14 and I-S-15) to "PF specialty resins tank (9,910-gallon capacity)", (ID Nos. I-S14 and I-S15)
- Modified description and ID numbers of Urea solution tank (10,000-gallon capacity) (ID Nos. I-S-14 and I-S-15) to "PF specialty resins tank (9,910-gallon capacity)", (ID Nos. I-S14 and I-S15)
- Modified description of Process water tank (10,000-gallon capacity) (ID Nos. I-S18) to "PF specialty resins tank (9,910-gallon capacity)"
- Modified description and ID number of Distillate water tank (10,000-gallon capacity) (ID Nos. I-S-20) to "Distillate water tank (9,910-gallon capacity)", (ID Nos. I-S20)
- Modified description and ID number of Process water tank (10,000-gallon capacity) (ID Nos. I-S-21) to "PF specialty resins tank (9,910-gallon capacity)", (ID Nos. I-S21)
- Modified description and ID number of PF resins tank (10,000-gallon capacity) (ID Nos. I-S-22) to "PF specialty resins tank (9,910-gallon capacity)", (ID Nos. I-S22)
- Modified description of diesel fuel tank (10,000 gallon capacity) (ID No. I-D1) to "diesel fuel tank (12,000-gallon capacity)"
- Modified description of diesel fuel tank (12,000 gallon capacity) (ID No. I-D2) to "diesel fuel tank (10,000-gallon capacity)"
- Modified description of temporary boiler (ID No. ES-B2) to "One natural gas-fired temporary boiler (less than 25 million Btu per hour maximum heat input rate [NSPS Dc]"
- Removed Kerosene Tank (275 gallon capacity) (ID No. I-K1) and PF resin tank (10,000 gallon capacity) (ID No. I-S7)
- Removed three Propane-fired startup heater (0.23 million Btu per hour maximum heat input rate (ID Nos. I-PH1, I-PH2, I-PH3)
- Removed Hydraulic oil tank (600 gallon capacity) (ID No. I-HO)
- Renumbered the following tanks contributing to both aggregate batch process vent stream (ID No. VS4A.1) and vent stream (ID No. VS4A.2):
    - Batch non-reactor vessel (weigh tank) (ID No. ES4.9) to ID No. ES4.1-5WT
    - Batch non-reactor vessel (weigh tank) (ID No. ES4.10) to ID No. ES4.2WT
    - Batch non-reactor vessel (weigh tank) (ID No. ES4.11) to ID No. ES4.8WT
    - One mix/blend tank (ID No. S-13) to ID No. ES-13

V. Description of Changes and Estimated Emissions

GP has requested the following revisions to their permit in their renewal application:

Include natural gas-fired heat transfer fluid heater (ID No. ES-HTF) in the emissions source table. This existing source is subject to 40 CFR 63, Subpart DDDDD, also known as the Boiler Maximum Achievable Control Technology (MACT) standard. The omission of this source from the table has been corrected in this permit revision. Emissions from this source are discussed in Section VI.A of this review.

Listing the Resin Loading Racks (ID No. I-RLR) as a significant emissions source. GP has revised its potential to emit estimate for the resin loading racks activity (which is currently comprised of the East Load Rack, West Load Rack, Reactor Load Rack, and Railcar Load Rack – formerly identified as resin loading racks Nos. 1, 2, 3, 5, and 6) and has determined that this source can no longer be considered an insignificant emissions source.

The table below lists estimated emissions from the resin loading racks.

HAP	Resin Loading Racks (I-RLR), Emissions by Loading Rack, lb/hr				
	East	West	Reactor	Railcar	Combined
Formaldehyde	0.97	1.19	0.59	0.59	3.33

Methanol	32.49	30.94	15.51	29.04	107.98
Phenol	0.11	0.21	0.10	0.10	0.51

Of these emissions, formaldehyde and phenol are listed North Carolina air toxics. An August 6, 2007 modeling review for the GP facility determined the following impacts for North Carolina air toxics emitted at the GP facility. The resin loading racks were not included in this review.

Pollutant	Maximum Modeled Impacts, micrograms per cubic meter				
	Averaging Period	Emission Rate, pounds per hour	Impact	Acceptable Ambient Level (AAL)	Percent of AAL
Formaldehyde	**1-hour**	**5.99**	**51.6**	**150**	**34.4**
Ammonia	1-hour	8.94	819.9	2700	30.4
Phenol	**1-hour**	**4.57**	**744.8**	**950**	**78.4**

As shown in the above table, emissions of formaldehyde and phenol were established at 34.4 and 78.4% of their respective AALs. Inclusion of the emissions from the resin loading rack from the new emission estimates would not be expected to cause levels of either of these air toxics to approach the AAL, so a new air toxics analysis is not warranted at this time. In addition, the resin loading racks are not subject to regulation under any MACT standard at this time.

Remove permit conditions associated with burning fuel oil in temporary boiler (ID No. ES-B2). Since GP only burns natural gas in this temporary boiler, they have requested the description of the boiler be changed to reflect this fact, and to delete permit conditions associated with firing this boiler with fuel oil. The new permit has been revised accordingly.

Include cartridge dust collector system as control device for mix/blend tank K6 (ID No. ES4.6). This existing control device (a Donaldson Torit 3DF12 cartridge dust collector) had not been listed in the emissions source table of the current permit, or in IBEAM. The mix/blend tank K6 was assumed to have been uncontrolled in the previous permit review. The application provides the following emission estimates from the mix/blend tank with and without the control device:

Potential Emissions	**Before control, ton/yr**	**After control, ton/yr**
Particulate matter	64.52	1.44
Total HAP	0.01	0.01

As shown, PM emissions from the mix/blend tank are reduced by 98%. While the cartridge dust collector (ID No. CD-4.6) does not reduce HAP emissions from the mix/blend tank, Section VI of this review explains why these HAP emissions represent a negligible fraction of a batch stream of process tanks for which the required level of control is achieved.

Removal of PSD avoidance condition for emergency generators (ID No. ES-GEN1 and ES-GEN2). In the past, to avoid exceeding Prevention of Significant Deterioration (PSD) thresholds, GP accepted a NOx emissions limit of less than 40 tons per year (ton/yr) for these two emergency generators. The emissions were limited by a restriction on operating each generator of 1,000 hours per year (hr/yr). However, U.S. Environmental Protection Agency (EPA) guidance on calculating potential to emit for emergency generators states that 500 hr/yr is a reasonable basis for determining the potential to emit for a typical

emergency generator.[1] Using this assumption, GP estimates NOx emissions from both emergency generators would be 9.03 ton/yr—a quantity well below the 40 ton/yr limit. Therefore, GP has requested this PSD avoidance limit be removed from the permit. Because GP is not expected to operate either emergency generator in excess of 500 hr/yr, this avoidance condition has been removed from the permit. Compliance with PSD thresholds is expected.

Revision of control and operation requirements for the catalytic oxidizer (ID No. CD-2A). The current permit for the facility establishes a minimum daily average upstream temperature and a minimum daily average temperature drop across the catalyst bed to maintained at all times. GP has requested changes to the existing permit requirements that would allow them to establish a range of conditions that indicates proper operation of the oxidizer. The range would be established based on performance testing and would establish minimum temperatures for high and low formaldehyde production rates at the GP facility. The revised control and operation requirements are based on the process vent monitoring requirements (40 CFR 63.114(e)) and the recordkeeping requirements (40 CFR 63.152(f)) of Subpart G.

Based on performance tests documented in a May 25, 2017 memorandum by Shannon Vogel of the NC DAQ Stationary Source Compliance Branch, the following minimum compliance temperature limits were established:

Operating Ranges and Catalytic Oxidizer Minimum Compliance Temperature Limits				
Operating Range	**Methanol Feed Rate (gallons per minute)**	**Methanol Feed Rate (pounds per hour)**	**Average Catalyst Inlet Temperature (ºF)**	**80% of Average Temperature Across Catalyst Bed (ºF)**
High	17.6 – 25.6	6,963 – 10,166	775	314
Low	12.0 – 17.5	4,774 – 6,962	775	189

The permit has been revised to reflect these new minimum compliance temperature limits, and to allow GP to amend these limits based on performance testing through the submittal of a Notification of Compliance Status in a permit renewal or modification. Compliance is expected.

Renumbering of Four Tanks Tied to Aggregate Vent Streams. GP requested the ID numbers for weigh tanks Nos. ES4.9, ES4.10, and ES4.11 be changed to ES4.1-5WT, ES4.2WT, and ES4.8WT respectively; and that mix tank No. S-13 be changed to ES-13. These tanks are part of the resin manufacturing process, and their emissions comprise a portion of an aggregate batch process vent stream (No. VS4A.1) subject to regulation under Subpart OOO (Manufacture of Amino/Phenolic Resins). When emissions from the formaldehyde production process are included with emissions from the resin manufacturing process, the combined vent stream (No. VS4A.2) becomes subject to regulation under Subparts F (Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry (SOCMI)), G (Organic Hazardous Air Pollutants from SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater) and H (Organic Hazardous Air Pollutants for Equipment Leaks).

These numbering changes do not affect plant operations or emissions from the facility.

VI. Regulatory Review for Individual Source Categories

[1] U.S. Environmental Protection Agency. "Calculating Potential to Emit (PTE) for Energy Generators." Memorandum from John Seitz, Office of Air Quality Planning and Standards, September 6, 1995.

A. One natural gas/propane-fired boiler (25.1 million Btu per hour (MMBtu/hr) maximum heat input rate, ID No. ES-B1)

One natural gas/propane/No. 2 fuel oil-fired temporary boiler (less than 25 MMBtu/hr maximum heat input rate, ID No. ES-B2)

One natural gas/propane-fired heat transfer fluid heater (2.3 MMBtu/hr maximum heat input rate, ID No. I-HTF)

Boiler ES-B1, manufactured in 2006, is the primary source of process heat used throughout the facility. Boiler ES-B2 is a temporary boiler brought onsite whenever the primary boiler ES-B1 is taken out of service.

GP also employs the following sources included on the list of insignificant activities: a natural gas/propane-fired heat transfer fluid heater (2.3 MMBtu/hr maximum heat input, ID No. I-HTF), installed in 1994, and three propane-fired startup heaters (I-PH1 through I-PH3, each with a maximum heat input of 0.23 MMBtu/hr).

The following regulations apply to these sources described above:

1. 15A NCAC 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers: This rule applies to boilers ES-B1 and ES-B2, as well as heat transfer fluid heater I-HTF, and establishes allowable PM emission limits from these indirect heat exchangers based on the following equation:

   $E = 1.090(Q)^{-0.2594}$

   Where: E = allowable emissions in pounds (lb) of particulate matter (PM) per MMBtu, and
   Q = maximum heat input, MMBtu per hour (hr)

   For I-HTF: E = 1.090(26.3) -0.2594Q = 0.47 lb PM/million Btu
   For ES-B1, ES-B2: E = 1.090(52.4) -0.2594Q = 0.39 lb PM/million Btu

   Both boilers burn natural gas and/or propane as fuel; boiler ES-B2 can also burn No. 2 fuel oil. The 5th edition of AP-42 provides the following total PM emission factors for boilers using these fuels:

   7.6 lb PM/10^6 cubic feet (ft^3) of natural gas (from Supplement D, Table 1.4-2)
   0.6 lb PM/10^3 gallons (gal) of propane (from Supplement D, Table 1.4-1)
   3.3 lb PM/10^3 gal of No. 2 fuel oil (from Supplement E, Tables 1.3-1 and 1.3-2)

   Using heating values of 1,020 Btu/ft^3 for natural gas, 90,500 Btu/gal for propane, and 141,000 Btu/gal for No. 2 fuel oil, estimated PM emissions should be well below the regulatory limit, as shown below:

   E (natural gas) = [7.6 lb PM/10^6 ft^3]/[1,020 Btu/ft^3] = 0.0075 lbs PM/MMBtu
   E (propane) = [0.7 lb/10^3 gal] / [90.5 x 10^6 Btu/10^3 gal] = 0.008 lbs PM/MMBtu
   E (No. 2 fuel oil) = [3.3 lb PM/10^3 gal] / [141 x 10^6 Btu/10^3gal] = .023 lb PM/MMBtu

   Compliance is inherent for each fuel utilized and/or permitted. Therefore, no testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under the 02D .0503 permit condition. Compliance is expected.

2. 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources: This rule applies to boilers ES-B1 and ES-B2, heater I-HTF and startup heaters I-PH1 through I-PH3, limiting their sulfur dioxide (SO_2) emissions to 2.3 lbs/MMBtu of heat input.

   Each device burns natural gas and/or propane as fuel. Using emission factors from the 5th edition of AP-42, SO_2 emissions are estimated as follows:

   E = 0.6 lb/MMBtu from the combustion of natural gas *Table 1.4-2*
   E = (0.02 lb/10^3 gal) / (90.5 MMBtu/10^3 gal) = 0.0002 lb/MMBtu *Table 1.5-1*

   Boiler ES-B2 is also capable of burning No. 2 fuel oil. Using the emission factor from the Table 1.3-1 of the 5th edition of AP-42, SO_2 emissions are estimated as follows:

   E = [(142)(0.06*) lb SO_2/10^3 gal][10^3 gal)/142 (10^6) Btu] = 0.060 lbs SO_2/million Btu

   ** The sulfur content of the fuel oil is limited to ensure ES-B2 meets the definition of temporary boiler under NSPS Subpart Dc.*

   Compliance is inherent for each fuel utilized and/or permitted. Therefore, no testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under the 02D .0516 permit condition. Compliance is expected.

3. 15A NCAC 02D .0521, Control of Visible Emissions: This rule applies to boilers ES-B1 and ES-B2, heater I-HTF, and startup heaters I-PH1 through I-PH3. Visible emissions shall exceed 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent opacity if: (1) no six-minute period exceeds 87 percent opacity; (2) no more than one six-minute period exceeds 20 percent opacity in any hour; and (3) no more than four six-minute periods exceed 20 percent opacity in any 24-hour period. Compliance is inherent for each fuel utilized and/or permitted. Therefore, no testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under the 02D .0521 permit condition. Compliance is expected.

4. 15A NCAC 02D .0524, New Source Performance Standards (NSPS): Under this rule, boiler ES-B1 is subject to Subpart Dc of 40 CFR Part 60. GP shall record and maintain records of the amount of each fuel combusted during each calendar month. These records shall be maintained for a period of two years following the date of each record and made available to the North Carolina Department of Environmental Quality (NC DEQ) upon request. The NSPS standard does not apply to boiler ES-B2, a temporary boiler which is brought on site for operation when boiler ES-B1 is out of service. This temporary boiler is limited to 180 days of operation per 12 consecutive month period. Continued compliance is expected.

5. 15A NCAC 02D .1100, Control of Toxic Air Pollutants: Boilers ES-B1 and ES-B2 are exempt from the air toxics requirements in accordance with 15 NCAC 02Q .0702(a)(27).

6. 15A NCAC 2D.1111, Maximum Achievable Control Technology (MACT): Boiler ES-B1 and ES-B2 are subject to 40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants (NESHAP) from New and Existing Industrial, Commercial, and Institutional Boilers and Process Heaters at Major Sources. Primary boiler ES-B1. which burns natural gas and propane, meets the definition of a "unit designed to burn gas 1" in 40 CFR 63.7575 of this MACT standard. No emissions limits are applicable to boilers firing natural gas or other gas 1 fuels. The

standard requires work practices, including an annual boiler tune-up, to demonstrate compliance. Compliance is expected.

An avoidance condition was placed in the previous permit (No. 04243T24) limiting temporary boiler ES-B2 to no more than 180 days onsite per consecutive 12-month period to avoid the MACT Subpart DDDDD requirements. Compliance with the avoidance condition is expected because the unit normally remains on site no more than two weeks each year when boiler ES-B1 is taken out of service.

7. 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions: No odors are associated with the operation of boilers ES-B1 and ES-B2, or any of the insignificant heaters (I-HTF and I-PH1 through I-PH3).

8. 15A NCAC 02Q .0317, Avoidance Conditions: As discussed above, an avoidance condition was included in permit No. 04243T24 limiting the operation of boiler ES-B2 so that it meets the definition of temporary boiler in both the NSPS (40 CFR 60, Subpart Dc) and the MACT regulations (40 CFR 63, Subpart DDDDD). The boiler shall not operate more than 180 days over 12 consecutive months on site. Continued compliance is expected.

B. Two No. 2 fuel oil-fired emergency generators (500 kilowatt (kW) maximum rated power output each, ID Nos. ES-GEN1 and ES-GEN2)

These emergency generators supply electricity to the facility during power outages. ES-GEN1 was manufactured in 2003 and ES-GEN2 was manufactured in 1988. Previous permit reviews established that:

- as these generators are not indirect heat exchangers, they are not subject to 15A NCAC 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers.
- as internal combustion engines, these generators are not subject to 15A NCAD 02D .0515, Particulates from Miscellaneous Industrial Processes.

1. 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources: This rule limits SO_2 emissions for the emergency generators to 2.3 lb/MMBtu. Using the emission factor from Table 1.3-1 of the 5th edition of AP-42, SO_2 emissions are estimated as follows:

$$SO_2 \text{ emissions} = \frac{\text{EF (lb/10}^3\text{ gal) x (weight \% of sulfur in fuel)}}{\text{heat value of fuel oil (MMBtu/10}^3\text{ gal)}} = \frac{\text{142 (lb/10}^3\text{ gal) x (0.5)}}{\text{140 (MMBtu/10}^3\text{ gal)}}$$

$$= 0.51 \text{ lb/MMBtu}$$

Therefore, compliance is inherent for both emergency generators, and no testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under the 02D .0516 permit condition.

2. 15A NCAC 02D .0521, Control of Visible Emissions: This rule limits visible emissions to 20% opacity averaged over a six-minute period (except once in any hour and four times per 24 hours six-minute average, visible emissions may exceed 20% opacity, provided they do not exceed 87% opacity). No testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under this permit condition when the generators are fired with No. 2 fuel oil. Compliance is anticipated

3. 15A NCAC 02D .1100, Control of Toxic Air Pollutants: The exemption for combustion sources was in place at the time the emergency generators were permitted. Therefore, no 02D .1100 permitting requirements apply.

4. 15A NCAC 02D .1111, MACT: Under this rule, emergency generators ES-GEN1 and ES-GEN2 are subject to 40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants (NESHAP): Stationary Reciprocating Internal Combustion Engines (RICE). ES-GEN1 is considered a new generator; ES-GEN2 is considered an existing generator. As exempted in §63.6590(b)(1)(i) for ES-GEN1 and §63.6590(b)(3)(iii) for ES-GEN2, the emergency generators are not subject to any of the emission limits, work practices, or testing, monitoring, or recordkeeping requirements in the RICE NESHAP. Both emergency generators are limited to 100 hours of non-emergency operation per calendar year, in addition to their use as needed during emergencies. Compliance is anticipated.

5. 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions: No odors are associated with the emergency generators. Therefore, the reference to the 02D .1806 in the table of applicable regulations for ES-GEN1 and ES-GEN2 has been removed.

6. 15A NCAC 02Q .0317, Avoidance Conditions: Permit No. 04243T23 limits NO_X emissions from each emergency generator to less than 40 tons per consecutive 12-month period to avoid triggering prevention of significant deterioration (PSD) requirements. As discussed previously in Section V of this review, this avoidance condition is no longer necessary, and will be removed from the permit.

C. Urea unloading hoppers (ID Nos. ES-UH-K3 and ES-UH-K8) and associated bin vent filters (ID Nos. CD-UH-K3 and CD-UH-K8)

Granulated urea is loaded mechanically from railcars with a conveyor and bucket elevator, or pneumatically from trucks into the urea hoppers (ES-UH-K3 and ES-UH-K8). Material is removed from the hoppers through a rotary airlock and gravity-fed into the reactor kettle. Each hopper is equipped with a bin vent filter (CD-UH-K3 and CD-UH-K8**)** to reduce particulate emissions.

1. 15 NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes**:** This rule limits the allowable PM emissions from the urea hoppers to:

$E = 4.10(P)^{0.67} = 4.10(25)^{0.67} = 35.4$ lbs PM/hour *for processes with rates ≤ 30 ton/hr.*

where: P = the process weight rate (ton/hr) = 25 tons/hr maximum rate, and
E = allowable emissions (lbs PM/hr)

The allowable PM emission rate of 35.4 lb/hr was established on the basis of 25 tons of granulated urea unloaded each hour. GP's current renewal application estimates uncontrolled PM emissions for the hoppers at 10.29 lb/hr. For controlled emissions, the application uses an emission factor of 0.01 grains (gr) per dry standard cubic foot (dscf), and a bin filter flow rate of 1,200 dscf/min. The emission rate after control is calculated as follows:

$$\text{PM Emission Rate (lb/hr)} = \text{Emission Factor (gr/dscf)} * \text{Air Flow Rate (dscf/min)} * \frac{1\text{ lb}}{7000\text{ gr}} * \frac{60\text{ min}}{1\text{ hr}}$$

$$= 0.01\text{ gr/dscf} * 1{,}200\text{ dscf/min} * \text{lb}/7000\text{ gr} * 60\text{ min/hr} = \mathbf{0.1\ lb/hr}$$

To ensure adequate control, the permit will continue to require monthly and annual inspections of the bin vent filters. Compliance is expected.

2. 15 NCAC 02D .0521, Control of Visible Emissions: This rule limits visible emissions to 20% (except once in any hour and four times per 24 hours six-minute average, visible emissions may exceed 20% opacity, provided they do not exceed 87% opacity). To ensure compliance for visible emissions, GP performs monthly observations, maintains records, and submits semiannual summary reports of visible emissions observations to NC DAQ. They have consistently demonstrated compliance, and continued compliance is expected.

3. 15 NCAC 02D .0614, Compliance Assurance Monitoring**:** According to the application, the pre-control potential PM emissions from the urea unloading hoppers are 45.05 tons per year, combined–less than the associated major source threshold. Therefore, this rule does not apply to the urea unloading hoppers.

4. 15 NCAC 02D .1100, Control of Toxic Air Pollutants**:** The urea unloading hoppers do not emit any NC toxic air pollutants and are therefore not subject to the NC toxics program.

5. 15 NCAC 02D .1806, Control and Prohibition of Odorous Emissions: No odors are associated with the urea unloading hoppers.

D. Two extender silos (ID Nos. ES-11.1 and ES-11.2), batch non-reactor vessel, mix/blend tank K6 (ID No. ES-4.6), and associated bin vent filters (ID Nos. CD-11.1, CD-11.2, and CD-11.6)

Trucks deliver solid raw extender materials (e.g. corn, wheat, pecan shells and various flours) to the facility, which are used in the Resi-mix® resin production process. The truck contents are pneumatically unloaded into two extender silos (ES-11.1 and ES-11.2), each with a capacity of approximately 5,400 cubic feet. Particulate emissions during silo loading are controlled by bin vent filters (CD-11.1 and CD-11.2) comprised of four cartridge filters (100 ft^2 per cartridge). A separate bin vent filter (CD-11.6) controls emissions from mix/blend tank K-6, where extenders and other solids are loaded.

1. 15 NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes**:** This rule applies to the extender storage silos and limits the allowable PM emission from these sources to:

   $E = 4.10(P)^{0.67} = 4.10(24)^{0.67} = 34.5$ lb PM/hr *for process rates ≤ 30 ton/hr*

   where: P = the process weight rate (ton/hr) = 24 ton/hr maximum rate, and
   E = allowable emissions (lb PM/hr)

   The PM emissions limit of 34.5 lb/hr was calculated assuming extender materials are unloaded at a maximum rate of 24 tons per hour. The following table lists estimated uncontrolled and controlled emission estimates from the renewal application. The bin vent filters reduce PM/PM_{10} from these sources by at least 98%.

Emission Source	PM Emissions, Uncontrolled, lb/hr	PM Emissions, Controlled, lb/hr
Extender storage silos ES-11.1, ES-11.2	6.86	0.07
Mix/blend tank K6	14.73	0.33

ES-4.6		
Total	**21.59**	**0.40**

The permit requires monthly and annual inspections of the bin vent filters to ensure they provide effective control. Compliance is expected.

2. 15 NCAC 02D .0521, Control of Visible Emissions: This rule limits visible emissions to 20% opacity (except a six-minute averaging period can exceed 20% once per hour and four times per 24-hour period, provided visible emissions do not exceed 87% opacity). To ensure compliance, GP Resins performs monthly visible emission observations, maintains records, and submits semiannual summary reports of visible emission observations to NC DAQ. During the most recent inspection, this source was observed in operation with visible emissions of 0% opacity, and the most recent semiannual report was found to demonstrate compliance with 02D .0521. Continued compliance is expected.

3. 15 NCAC 02D .0614, Compliance Assurance Monitoring: Uncontrolled potential PM emissions from the extender storage silos and Resi-mixer are 94.55 ton/yr, combined, which is less than the 100 ton/yr major source threshold. Therefore, this rule does not apply to these sources.

4. 15 NCAC 02D .1100, Control of Toxic Air Pollutants: Neither the mix/blend tank nor the extender storage silos emit any NC toxic air pollutants. Therefore, the NC toxics program does not apply to these sources.

5. 15 NCAC 02D .1806, Control and Prohibition of Odorous Emissions: No odors are associated with the extender silos or the mix/blend tank.

E. Continuous process vent stream (ID No. ES-VS5A) and associated bag filter (ID No. CD-5A)

Liquid resin produced in the manufacturing process is diluted with water, mixed in an agitator, and sprayed using a natural gas/propane-fired atomizing air heater (14.6 million Btu (mmBtu) per hour maximum heat input) into a hot air stream. The spray-dried resin solidifies instantly into powder, then is collected using a series of product collection cyclone separators and finally bagged or boxed for shipment. As stated in GP's renewal application, the maximum hourly dry resin production rate is 2.59 tons per hour. Emissions from the process are vented to a 14,500 ft^2 bag filter (CD-5A).

Spray dry resin production emissions include VOC and HAP evaporating from the resin during the drying process, particulates from the powdered resin, natural gas combustion pollutants including NOx and CO, and SO2 emissions from propane combustion.

1. 15 NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes**:** This rule limits the allowable PM emission from the powdered resin manufacturing process to:

   $E = 4.10(P)^{0.67} = 4.10(2.59)^{0.67} =$ **7.76 lb PM/hr** *for process rates ≤ 30 ton/hr*

   where: P = process weight rate (ton/hr) = 2.59 ton/hr (material throughput from permit renewal application)
   E = allowable PM emissions (lb/hr)

From the application, an PM emission factor of 0.01 grains (gr) per dry standard cubic foot (dscf) is used, along with a bag filter flow rate of 65,000 dscf per minute to estimate potential PM emissions.

PM emissions = emission factor x flow rate x unit conversion factor(s)

= (0.01 gr/dscf) (65,000 dscf/min) (1 lb/7000 gr) (60 min/hr)

= **5.57 lb PM/hr**

Because potential PM emissions are less than the allowable limit, compliance is expected.

2. 15 NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources: This rule applies to the spray dry resin atomizing air heater and limits SO_2 emissions from this source to 2.3 lb/mmBtu. This heater burns natural gas and/or propane as fuel. Using emission factors from the 5th edition of AP-42, SO_2 emissions are estimated as follows:

$E_{(Natural\ Gas)}$ = **0.6 lbs/mmBtu** (*Table 1.4-2)*

$$E_{(Propane)}, \text{ lb/mmBtu} = \frac{[0.10\ (100\ ft^3\text{- lb})\ /gr\ (10^3\ gal)](\text{sulfur content, gr/100 ft}^3)}{(\text{heat value of propane, mmBtu/}10^3\ gal)}$$ *(Table 1.5-1)*

= (0.10)(0.18 gr/100 ft^3) / (90.5 mmBtu/10^3 gal) = **0.0002 lb/mmBtu**

Compliance is inherent whether the air heater is fired with natural gas or propane. Therefore, no testing, monitoring, recordkeeping, or reporting is required to demonstrate compliance under the 02D .0516 permit condition.

3. 15 NCAC 02D .0521, Control of Visible Emissions: This rule applies to the spray dry resin atomizing air heater and limits visible emissions to 20% opacity (except a six-minute averaging period can exceed 20% once per hour and four times per 24-hour period, provided visible emissions do not exceed 87% opacity). To ensure compliance, GP Resins performs monthly visible emissions observations, maintains visible emissions records, and submits semiannual summary reports of visible emissions observations to NC DAQ. During the most recent inspection, this source was observed in operation with visible emissions of 0% opacity, and the most recent semiannual report was found to demonstrate compliance with 02D .0521. Continued compliance is expected.

4. 15 NCAC 02D .1100, Control of Toxic Air Pollutants: Three toxic air pollutants (TAP) are emitted from the spray dry resin production process at rates above the toxic pollutant emission rates (TPERs). GP has demonstrated compliance with the AALs for each of these TAPs by modeling at their potential emission rate. As shown in the following table, compliance is clearly indicated.

Toxic Air Pollutant	02D .1100 limit (lb/hr)	Potential Emissions (lb/hr)	2015 Emissions (lb/hr)
Formaldehyde	4.8	4.8	0.6
Phenol	2.26	2.26	0.10
Ammonia	4.22	3.8	0.01

Continued compliance is expected.

See discussion in Section VI.C of this document, below for facility-wide toxics.

5. 15 NCAC 02D .1111 "Maximum Achievable Control Technology": While the spray dryer is considered a continuous process vent under the Amino/Phenolic Resins MACT (Subpart OOO), control of HAP evaporating during the spray drying process was not required at the time the permit was last issued, because it was an existing source. On October 15, 2018, the EPA revised the Resins MACT in response to petitions for reconsideration (83 FR 51842). The revised rule established a production-based HAP emission limit of 8.6 pounds of HAP per ton of resin produced. As an existing source, GP is required to comply with the new limit by October 15, 2019. In an October 15, 2018 Precompliance Report submitted to NC DAQ as required by the revised rule, GP intends to show compliance with the continuous process vent requirements through production records. They do not require a control device to comply with the new limit. Continued compliance is expected.

6. 15 NCAC 02D .1806, Control and Prohibition of Odorous Emissions: See discussion in Section VI.D of this document, below.

F. Ammonia storage tank (ID No. ES-S19) and associated scrubber tank (ID No. CD-S19); Methanol storage tank (ID No. ES-3M1); eight formaldehyde/ methanol storage tanks (ID Nos. ES7-F1 through ES7-F8); and associated catalytic oxidizer (ID No. CD-2A) or thermal oxidizer (ID No. CD-4A)

Ammonia storage tank ES-S19 (9,924-gallon capacity) stores aqueous ammonia delivered via tank truck on-site, and supplies ammonia to resin production processes at the facility (kettles K-1, K-2, K-3, K-5, K-7, and K-8). The table below presents estimated uncontrolled and controlled ammonia emissions from standing losses (vapor losses caused by fluctuating levels of liquid within a tank) and working losses (emissions generated when liquid is pumped into or out of a tank) are estimated at 18 pounds per hour before control. A scrubber tank (CD-S19) reduces ammonia emissions from working losses by 75%.

Tank Emissions	Uncontrolled, lb/yr	Controlled, lb/yr
Standing losses	626.66	0.00
Working losses	2,824.38	706.09
Total	**3,451.04**	**706.09**

Methanol storage tank ES-3M1 (507,850-gallon capacity) stores methanol delivered from tank trucks and/or railcars for use in the formaldehyde production process (ES-2). The tank is equipped with a chilled water vent condenser and the tank vent discharge is routed to the formaldehyde production process where most of the methanol is consumed in the reaction. The tail gases from the production process are vented to the catalytic oxidizer (CD-2A) where, as discussed in section VII.A of this review, HAP/VOC are reduced by a minimum of 98%. When formaldehyde is not being produced at the site, emissions from the storage tank are sent to the resins thermal oxidizer (CD-4A), which, as discussed in section VI.E.4 of this review, achieves 95% HAP destruction.

Tanks ES7-F1 through ES7-F8, placed into operation in 1974, usually store formaldehyde produced in the formaldehyde production process (ES-2), but occasionally store methanol when methanol storage tank ES-3M1 is out of service. Each of these tanks has a vapor return loop and tank vent discharge ducted to the control device. For formaldehyde vapor, venting to the thermal oxidizer (CD-

4A) is the primary control scenario, and the catalytic oxidizer (CD-2A) is the alternative control scenario. For methanol vapor, the control scenarios are reversed.

1. 15 NCAC 02D .0949, Storage of Miscellaneous Volatile Organic Compounds: This rule applies to methanol storage tank ES3M1 because it stores liquid volatile organic compounds (VOCs), has a capacity greater than 50,000 gallons, and is not subject to 02D .0925 or 02D .0933. The rule restricts the VOC vapor pressure to greater than or equal to 1.5 psia under actual storage conditions unless the tank is:

- A pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor gas loss into the atmosphere; or
- Designed and equipped with one of the following vapor loss control devices;
    - A floating pontoon, double deck type floating roof or internal pan type floating roof equipped with closure seals (note that this control option is not permitted for VOCs with vapor pressure ≥ 11.0 psia under actual storage conditions); or
    - A vapor recovery system (or other equipment or means of air pollution control) that reduces organic material emissions into the atmosphere by ≥ 90% by weight.

GP complies with this rule by venting emissions from tank ES3M1 to either:

- the formaldehyde process during production (which is controlled by catalytic oxidizer CD-2A), or
- thermal oxidizer CD-4A when the formaldehyde manufacturing is shut down.

GP is required to reduce VOC emission by at least 90% by weight. The monitoring, recordkeeping, and reporting requirements of 40 CFR Part 63, Subparts F, G and H (refer to the discussion of 2D .1111 in Section III A of this document) are sufficient to ensure compliance.

2. 15 NCAC 02D .1100, Control of Toxic Air Pollutants: Three toxic air pollutants (TAP) are emitted from the storage tanks at rates above the TPERS. GP Chemical has demonstrated compliance with the AALs for each of these TAPs by modeling at their potential emission rate. Therefore, compliance is clearly indicated.

Emission Source	**02D .1100 Limit**
Aqueous ammonia storage tank (**ID No. ES-S19**)	4.5 lb/hr of ammonia
Storage and loadout of resins in phenol-formaldehyde resin tank farm (**ID No. PFTF**) and urea-formaldehyde resin tank farm (**ID No. UFTF**)	0.23 lb/hr of formaldehyde
	0.03 lb/hr of phenol

See discussion in Section VII.C of this document below.

3. 15 NCAC 02D .1111 "Maximum Achievable Control Technology: On October 8, 2014, the U.S. EPA promulgated a revision to 40 CFR Subpart OOO which established new emission reduction requirements for continuous process vents at existing affected sources. Vents at existing effected sources with a total resource effectiveness (TRE) index value less than or equal to 1.2 must do one of the following:

    - Vent all organic HAP emissions to a flare;
    - Reduce total organic HAP emissions
        - by 85% weight-percent,

  - to 20 ppmv using a combustion control device, or
  - to 50 ppmv with a non-combustion control device, whichever is less stringent; or
- Reduce emissions to
  - Less than or equal to 0.95 kg/megagram of total organic HAP (1.9 lbs/ton)
  - 20 ppmv using a combustion control device, or
  - 50 ppmv with a non-combustion control device, whichever is less stringent.

At the GP facility, all these emissions are ducted to the thermal oxidizer (ID No. CD-4A).

To ensure these limits will not be exceeded, the facility conducted initial performance tests in 2003 to identify the temperature the thermal oxidizer must maintain to achieve the required HAP control efficiencies. Testing established that 1,250 ºF was sufficient to maintain 95% HAP weight percent reduction—exceeding the 85% reduction required. The thermal oxidizer was found to be operating at an inlet temperature of 1264 ºF (set at 1265 ºF).

The facility must monitor the thermal oxidizer to assure a minimum firebox daily average temperature of 1,250 ºF is maintained at all times. These temperatures are continuously monitored. The permit requires daily averaging and recording of oxidizer temperature, and submittal of semiannual reports indicating daily average temperatures and exceedances for the reporting period. In addition, start-up, shutdown, and malfunction (SSM) plans must be established and implemented.

MACT Subpart OOO also requires the keeping of records to show that total HAP liquid loaded is less than 0.65 million liters (171,000 gallons) per year (the method used by GP), or that the rack-weighted average vapor pressure is less than 10.3 kilopascals (1.5 psia). No control is required because formaldehyde loading operations are classified as Group 2 under the rule. No emissions testing or reporting is required to demonstrate compliance with MACT Subpart OOO.

Compliance with the revised requirements is expected.

4. 15 NCAC 02D .1806, Control and Prohibition of Odorous Emissions: See discussion in Section VII.D of this document, below.

VII. Regulatory Review for Multiple Source Categories

A. Sources subject to the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (HON) for Existing Sources (40 CFR 63, Subparts F, G, and H)

Because the GP facility produces formaldehyde as a primary product and methanol as a reactant, it is subject to the requirements of the following subparts in 40 CFR Part 63:

- Subpart F (Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry; §§63.100 through 63.107)
- Subpart G (Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations and Wastewater)
- Subpart H (Organic Hazardous Air Pollutants Equipment Leaks; §§63.160 through 63.183) known as the Hazardous Organic NESHAP or the HON.

The HON Group 1 regulations apply to formaldehyde production processes and methanol storage and transfer equipment and require their emissions to be reduced by 98% by weight or to a concentration of 20 ppm by volume. The HON Group 2 regulations, which require no control, apply to formaldehyde loading, storage and transfer. GP is not subject to the wastewater requirements in Subpart G because they do not discard wastewater; rather they reclaim all HON process wastewater—including distillates—back into the process. The facility startup, shutdown, and malfunction plan includes procedures that employ good air pollution control practices for managing maintenance wastewater where methanol may be present. Subpart H requires a leak detection and repair (LDAR) program for all equipment in organic HAP service that contains or contacts a fluid containing at least five percent organic HAP for at least 300 hours per year. GP Resins has implemented an acceptable LDAR program.

Cooling Tower HX1 (ID No. ES-T1A)
In the production of formaldehyde, GP uses a heat transfer fluid system to remove heat from the exothermic reaction of methanol and oxygen which occurs at 1100 to 1200^{o}C. Heat is removed from the transfer fluid through a condenser using boiler feed water as the coolant. This exchanger produces steam at 150 pounds per square inch gauge pressure (psig) which is used to heat the air/methanol mixture exiting the methanol vaporizer. The system is maintained such that the minimum pressure on the cooling water side exceeds the maximum pressure on the process side by at least 35 kilopascals (5.076 psi)—this ensures the heat exchange system remains exempt from monitoring under Subpart G as allowed by 63.104(a)(1). However, GP voluntarily monitors the inlet and outlet formaldehyde concentrations each quarter, reports a summary of the results every six months, and has the option to operate the heat exchange system such that the pressure difference is less than 35 kilopascals—in which case the system would be subject to the Subpart G monitoring.

Formaldehyde tank truck loading rack (ID No. ES-FL)
Formaldehyde solution not used the resin manufacturing process is loaded into tank trucks at a maximum rate of 9,000 pounds per hour. Exhaust gases from loading exhaust gases are vented to the formaldehyde process (ES-2) when it is operating; otherwise they are vented to the catalytic oxidizer (CD-2A). When the oxidizer is down, the loading exhaust is routed to the thermal oxidizer (CD-4A) for control. GP records the quantity of formaldehyde loaded after each event, and performs LDAR in accordance with Subpart H. The facility is required to update records of the actual throughput, percent organic HAP, and rack weighted average HAP partial pressure annually in accordance with 40 CFR 63.130 (f).

Group 1 process vent stream (ID No. VS2A) and associated catalytic oxidizer (ID No. CD-2A); and vent stream (ID No. VS4A.2) and associated thermal oxidizer (ID No. CD-4A)
Formaldehyde gas is produced via a catalytic reaction between methanol and oxygen (in air) at high pressure, with iron millennium oxide as the catalyst. The formaldehyde gas travels up through a cascading water tower, where it is absorbed by the water to form a formaldehyde solution. Emissions are vented to the catalytic incinerator (ID No. CD-2A).

A maximum methanol supply rate of 1,920 lb/hr is used to produce various concentrations of formaldehyde solutions (typically a 50% aqueous solution). The primary HAPs emitted include methanol (329 ton/yr potential uncontrolled emissions), formaldehyde (313 ton/yr), and acetaldehyde (74 ton/yr). The absorber tail gas from formaldehyde production is classified as Group 1 because its flowrate is at least 0.005 m^3/min; its HAP concentration is at least 50 ppm, and its total resource effectiveness is no more than 1. Group 1 process vents require 98% control. The catalytic oxidizer provides the required control, reducing potential HAP emissions from 715 ton/yr to 15.8 ton/yr.

To ensure adequate control of HAP emissions from the Group 1 process vent, GP continuously monitors the upstream and downstream temperature of the catalyst bed, records temperature data every 15 minutes, and reports exceedances of the daily average temperature. Initial performance testing performed in 1995 for the catalytic oxidizer established a minimum daily average upstream temperature of 685 ºF and a minimum daily average temperature drop across the catalyst bed (also known as the "ΔT" or "delta T") of 250 ºF as sufficient to achieve 98% HAP reduction. More recent testing on April 28, 2016 resulted in an updated temperature of 775 ºF, with a ΔT of 314 ºF needed to achieve 90% HAP reduction. This increase may be due to the ageing of the catalyst. At the August 27, 2017compliance inspection, the catalytic oxidizer CD-2A was observed operating at an inlet temperature of 786 ºF, with a ΔT of 371 ºF.

When containing formaldehyde, the formaldehyde storage tanks (ID No. ES7F1 through ES7F8) are considered Group 2 emission points, and do not require control. Nonetheless, emissions from these tanks are routed to the formaldehyde production process as raw materials consumed in the reaction, and are ultimately controlled by the catalytic oxidizer CD-2A as required for Group 1 methanol storage. Tanks ES7F1 through ES7F8 are occasionally used to store methanol when the methanol storage tank (ES-3MI) is out of service, making these tanks subject to Group 1 control requirements. Along with a listing of tanks with their dimensions and capacity, GP maintains records indicating any time that the formaldehyde storage tanks (ID No. ES7F1 through ES7F8) are used for methanol storage and routes emissions from these tanks to the catalytic oxidizer. The thermal oxidizer (CD-4A) serves as a backup emission control for the catalytic oxidizer.

GP has established and maintains a leak detection and repair (LDAR) program for all subject equipment components, and monitors in accordance with the LDAR plan specified in Subpart H. Visual or "sniffer" inspections are performed to verify emissions are within acceptable limits depending on the type of service, in light or heavy service. Weekly (visual only), monthly, quarterly, and annual inspections are performed depending on equipment types. GP maintains inspection records and reports semiannually.

Compliance is expected.

B. Sources subject to 40 CFR Part 63, Subparts OOO and UU for existing sources

Subpart OOO establishes emission requirements for processes that produce amino/phenolic resins, including process units, associated heat exchange systems, control and recovery devices, vessels and equipment storing and/or handling material as impurities only, equipment intended to operate in organic HAP service for less than 300 hours per calendar year, waste management units, and maintenance wastewater.

Subpart OOO incorporates the equipment leak provisions in Subpart UU (National Emission Standards for Equipment Leaks - Control Level 2 Standards) by reference. Subpart UU requires the facility to establish, maintain and implement a LDAR program like the one described above for Subpart H, but more comprehensive component-wise. LDAR applies to components in service at least 300 hours per year and having a HAP content of at least five percent. The MACT Subpart UU program is comprised of weekly (visual only), monthly, quarterly, and annual inspections depending on the type of equipment and type of liquid service.

As discussed earlier in Section VI.E.4, Subpart OOO was revised on October 8, 2014 to incorporate findings from EPA's residual risk and technology review. The revisions are summarized as follows, and have been addressed in the permit renewal:

- Elimination of startup, shutdown, and malfunction exemptions
- Reduction of emissions by 95% is required for the following tanks at *existing* affected sources:
    - Capacity ≥ 20,000 and a vapor pressure of 1.9 pounds per square inch absolute (psia)
    - Capacity ≥ 40,000 gallons and a vapor pressure of 0.75 psia
    - Capacity ≥ 90,000 gallons and a vapor pressure of 0.15 psia
- Additional requirements for pressure relief devices in organic HAP service (§63.1411)
- Electronic reporting requirements (§63.1417(h)(8))

In addition, these revisions to Subpart OOO extended continuous process vent control requirements in §63.1405 to existing affected sources. Because these revisions called for significant changes in control strategy for the facility within a relatively short period of time, GP requested a one-year extension of the Subpart OOO revision compliance date. NC DAQ extended the compliance date to October 9, 2018. As discussed earlier in Section VI.E.5, the EPA revised the Resins MACT on October 15, 2018, establishing a production-based HAP emission limit of 8.6 pounds of HAP per ton of resin produced for existing continuous process vents. GP is required to comply with the new limit by October 15, 2019.

ID No.	Description
ES-S19	**Ammonia storage tank -** Aqueous ammonia is stored in a 9,924-gallon capacity fixed roof tank until needed as a reactant in the resin manufacturing process. Working/breathing losses from this tank are controlled by a fume abatement water/scrubber tank (ID No. CD-S19) which reduces ammonia emissions by 75% from a potential of 1.41 ton/yr to 0.35 ton/yr. ***No applicable requirements.***
ES-PU ESR1, ESR2, ESR5, ESR10	**Phenol unloading operations and four phenol storage tanks -** Phenol delivered by railcar is unloaded into 22,548-gallon raw material storage tanks at a maximum rate of 6,500 lbs/hr for use in the resin manufacturing process. Potential VOC/HAP/phenol emissions from these uncontrolled unloading operations are 0.72 tons per year. Because the vapor pressure of these tanks is less than 1.9 pounds per square inch absolute (psia), controls are not required. ***No applicable requirements.***
ESR8	**Urea-formaldehyde concentrate (UFC) storage tank -** UFC is stored in a 25,300-gallon capacity tank prior to usage in the resin manufacturing process. Because the vapor pressure for this tank is less than 0.75 psia, no controls are required for this tank. Although potential VOC/HAP emissions are only 0.029 tons per year, this source is permitted due to its toxic air pollutant emissions. ***No applicable requirements.***
UFTF	**Urea-formaldehyde resin tank farm -** Manufactured formaldehyde is stored in eight fixed roof storage tanks, each with a shell capacity of 26,212 gallons. Because the vapor pressure for each tank is less than 0.75 psia, no controls are required when these tanks store formaldehyde. Working/breathing losses from these tanks are normally routed to the formaldehyde manufacturing process (ES-2) and controlled by catalytic oxidizer (CD-2A). When ES-2 is down, the exhaust is vented to the thermal oxidizer (CD-4A) for control. ***No applicable requirements.***
PFTF	**Phenol-formaldehyde resin tank farm** (consisting of 52 tanks) **-** ***No applicable requirements.***

ID No.	Description
VS5A	**Continuous process vent stream and associated bag filter (ID No. CD-5A) -** Liquid resin produced in the manufacturing process is spray dried to produce powdered resin. This process began in 1995 and uses a direct-fired atomizing air heater with a spray dryer and seven transfer cyclones to produce a dry powdered resin. Because of the October 15, 2018 revisions to Subpart OOO, this vent stream would be subject to the continuous process vent control requirements in §63.1405 (see Section VI.E.5 above).
VS4A.1, VS4A.2	**Aggregate batch process vent stream and associated thermal oxidizer (ID No. CD-4A)** The resin manufacturing process (vent streams VS4A.1 and VS4A.2) began operations in 1969 and consists of: • 4 reactors: kettles K-1 (6000 gallons), K-3 (20,000 gallons), K-5 (5,000 gallons), and K-7 (16,000 gallons) used to produce phenol-formaldehyde resins, • 1 reactor, kettle K-2 (1,000 gallons) used to produce melamine-urea formaldehyde resins, • 1 reactor, kettle K-8 (16,000 gallons), used to produce urea-formaldehyde resins, • 3 weigh tanks (ES4.1-5WT, ES4.2WT and ES4.8WT), and • 1 mix/blend tank (ES-13, 9,924 gallons) for alcohol soluble resins. These sources are controlled by the recuperative thermal oxidizer (CD-4A) which was added in 1995. Formaldehyde reacts with other ingredients in the kettles over an 8-to-10-hour batch cycle to form liquid resin at a maximum rate of 11,000 pounds per hour. Before control, potential VOC emissions from this process include methanol (50.6 ton/yr), formaldehyde (10.9 ton/yr), acetaldehyde (1.5 ton/yr), and phenol (1.0 ton/yr).
ES4.6	**One batch non-reactor vessel, mix/blend tank -** The resin process includes an uncontrolled Resi-mixer (kettle K-6, operational in 1969) used to blend phenol-formaldehyde resin with other materials to form a finished product. Potential VOC/HAP emissions from this non-reactor batch vent are 0.005 tons per year and do not require control under the Resin MACT.
HX2	**Heat exchange system –** GP measures and compares entrance and exit mean formaldehyde concentrations in this system quarterly to detect leaks as specified in §63.1409(b)(6).
ES-RLR	**Resin loading racks -** East Load Rack, West Load Rack, Reactor Load Rack, and Railcar Load Rack- ***No applicable requirements.***

For reactor batch process vents subject to Subpart OOO requirements (aggregate batch process vent stream No. VS4A.1 and vent stream No. VS4A.2), total organic HAP emissions must be reduced either by 83% weight percent, or to a concentration of 20 ppmv.

For non-reactor batch process vents subject to Subpart OOO requirements (weigh tanks Nos. ES4.1-5WT, ES4.2WT and ES4.8WT, Resi-mixer (No. ES4.6), and mix/blend tank (No. ES-13), total organic HAP emissions must be reduced by 62% weight percent.

Compliance is achieved provided either each batch stream or the aggregate batch stream achieves the required HAP control. GP complies by routing emissions from the batch reactor process vent and four of the five non-reactor batch process vents to the thermal oxidizer (CD-2A). The Resi-mixer (ES4.6) vents to a baghouse, which only reduces particulate emissions. However, the HAP emissions from this vent are small—0.0024 lb/hr—so their contribution to the overall HAP content of the batch stream is negligible.

Stack testing performed on June 17, 2003 established 1,250 ºF as the minimum firebox temperature required for the thermal oxidizer to achieve sufficient control. The results from the stack test are provided below.

Pollutant	Resin Production* (tons/kettle hour)	TO Inlet (lbs/hr)	TO Inlet Emission Factor (lbs/ton resin)	TO Outlet (lbs/hr)	TO Destruction Efficiency
Methanol	5.0	9.32	0.2670	0.074	99.0%
Formaldehyde	5.0	2.01	0.0576	0.064	96.0%
Phenol	5.2	0.19	0.0073	0.00	100.0%
Overall Destruction Efficiency During June 17, 2003 Stack Test					**98.1%**

*Maximum resin production from all reactors combined is 379,200 tons per year.

Compliance inspections indicate the facility continuously monitors the thermal oxidizer to assure the minimum daily average temperature of 1,250 ºF is maintained at all times, records daily average temperatures, and submits semiannual reports.

MACT Subpart OOO also requires GP to maintain records to demonstrate that either:

- total HAP liquid loaded is less than 0.65 million liters (171,000 gallons) per year (the method used by GP). or
- the rack-weighted average vapor pressure is less than 10.3 kilopascals (1.5 psia).

No control, emissions testing or reporting are required because formaldehyde loading operations are classified as Group 2 under the rule.

MACT Subpart UU requires the facility to establish, maintain and implement a LDAR program similar to MACT Subpart H described above, but more comprehensive component-wise. LDAR applies to components in service at least 300 hours per year and having a HAP content of at least 5%. The MACT Subpart UU program was put in place January 20, 2003 and is comprised of weekly (visual only), monthly, quarterly, and annual inspections depending on type of equipment and type of liquid service. The most recent inspection noted all records appear to be complete and up-to-date. Furthermore, semiannual reports have been submitted on time and demonstrate compliance with MACT Subparts OOO and UU.

One batch non-reactor vessel, mix/blend tank kettle 6 (ID No. ES4.6)
The resin process includes an uncontrolled Resi-mixer used to blend phenol-formaldehyde (PF) resin with other materials to form a finished product. Potential VOC/HAP emissions from this non-reactor batch vent are 0.01 tons per year. Control is not required under Subpart OOO because the aggregate batch steam is sufficiently controlled to provide more than overall 62% HAP reduction from all the non-reactor batch vents combined.

Cooling Tower HX2 (ID No. ES-T3)
The resin plant and spray dryer are connected to a cooling tower/heat exchange system. Cooling water is used to condense vapors and control reactor temperatures during the exothermic reactions that produce formaldehyde. Uncondensed gases are removed by dedicated vacuum pumps (one for each reactor). The vacuum pump gases pass through a knock out pot which separates the liquid from the tail gas. The recirculating vacuum sump (vacuum pit) water is cooled by a heat exchanger and chiller. The heat exchange system provisions in 40 CFR Part 63.1409 require sampling of the heat exchange system quarterly to detect leaks. GP complies by

measuring and comparing entrance and exit mean formaldehyde concentrations as specified in §63.1409(b)(6) each quarter. Compliance is indicated.

C. Sources subject to North Carolina Air Toxics

- Continuous process vent stream (VS5A) and associated bagfilter (CD-5A)
- Urea-formaldehyde (UF) concentrate storage tank (ESR8)
- Phenol-formaldehyde (PF) resin tank farm consisting of 52 tanks (PFTF)
- Urea-formaldehyde (UF) resin tank farm consisting of 7 tanks (UFTF)
- One aqueous ammonia storage tank (ES-S19) and associated scrubber tank (CD-S19)
- Phenol unloading operations (ES-PU) and four phenol storage tanks (ESR1, ESR2, ESR5 and ESR10)
- Formaldehyde production equipment subject to LDAR requirements
- Resin production LDAR equipment subject to Subpart OOO LDAR requirements
- Process vent stream (VS2A) and associated catalytic oxidizer (CD-2A)
- Aggregate batch process vent stream (VS4A.1) and vent stream (VS4A.2) and associated thermal oxidizer (CD-4A)
- One batch non-reactor vessel, mix/blend tank kettle 6 (ES4.6)

15A NCAC 02D .1100

The sources listed below are subject to the NC air toxics rules due to facility wide emissions of three toxic air pollutants (TAPs)—ammonia, formaldehyde and phenol—at rates above the associated toxic pollutant permitting emission rates (TPERs) in 15A NCAC 02Q .0711. The maximum actual TAP emission rates from each source as controlled were modeled in a facility-wide toxics demonstration submitted with Application No. 6600016.07A pursuant to 15A NCAC 02Q .0705, prior to its repeal on May 1, 2014. The modeling demonstrated compliance with the acceptable ambient level (AAL) for each of the TAPs and is the basis for the following 02D .1100 emission limits:

TAP	Emission Source	Emission Limit
Formaldehyde	Process vent stream (VS2A)	1.43 lb/hr
	Aggregate batch process vent stream (VS4A.1) or vent stream (VS4A.2)	0.43 lb/hr
	Formaldehyde production LDAR program equipment	0.014 lb/hr
	Resin production LDAR program equipment	0.094 lb/hr
	Storage and loadout of resins in phenol-formaldehyde resin tank farm (PFTF) and urea-formaldehyde resin tank farm (UFTF)	0.23 lb/hr
	Continuous process vent stream (ID No. VS5A)	4.8 lb/hr
Phenol	Aggregate batch process vent stream (VS4A.1) or vent stream (VS4A.2)	0.04 lb/hr
	Resin production LDAR program equipment	0.12 lb/hr
	Storage and loadout of resins in phenol-formaldehyde resin tank farm (PFTF) and urea-formaldehyde resin tank farm (UFTF)	0.03 lb/hr
	Continuous process vent stream (VS5A)	2.26 lb/hr
	Phenol storage tanks (ESR1, ESR2, ESR5 and ESR10)	1.59 lb/hr

TAP	Emission Source	Emission Limit
	Phenol unloading operations (ES-PU)	0.6 lb/hr
Ammonia	Continuous process vent stream (VS5A)	4.44 lb/hr
	Aqueous ammonia storage tank (ES-S19)	4.5 lb/hr

In permit renewal application 6600016.12A (submitted in 2012), GP demonstrated compliance with the acceptable ambient levels for several of the sources listed above at higher emission rates than previously established. These new levels were approved and included in the previous permit renewal, as explained in the April 1, 2013 permit review. GP will be required to continue controlling and monitoring toxic emissions as specified in the existing permit. Based on previous testing, the facility should meet the emission limits listed above, provided that the catalytic oxidizer (ID No. CD-2A), the thermal oxidizer (ID No. CD-4A), and the scrubber tank (ID No. CD-S19) continue to control emissions as permitted. During the most recent inspection, these control devices appeared to be operating properly. Continued compliance is expected.

House Bill 952, passed by the NC General Assembly on June 21, 2012, now exempts MACT affected sources from NC air toxic regulations provided the toxic emissions do not present an unacceptable risk to human health. However, because GP has not requested the toxic limits for MACT sources to be removed and the control and monitoring, recordkeeping and reporting requirements under 02D .1100 for MACT affected sources are identical to the MACT requirements, the NC air toxic requirements for the MACT affected sources will remain in the permit.

D. Facility-wide affected sources:

1. 15 NCAC 02D .0958 "Work Practices for Sources of Volatile Organic Compounds"

The current permit required GP to follow certain practices prescribed in 15A NCAC 02D .0958 when using or storing VOC-containing materials, or cleaning or draining the equipment used to apply these materials. On November 1, 2016, amendments to 15A NCAC 02D .0902 for VOC emissions were finalized narrowing applicability of work practice standards in 02D .0958 from statewide to the maintenance area for the 1997 8-hour ozone standard. This change was made primarily because the abundance of biogenic VOC emissions in North Carolina results in ozone formation being limited by the amount of available NOx emissions. Provisions of the Clean Air Act require VOC requirements previously implemented in an ozone nonattainment area prior to redesignation remain in place. However, facilities outside the maintenance area counties for the 1997 8-hour ozone standard are no longer required to comply with the work practice standards in 15A NCAC 02D .0958.

2. 15 NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"

This rule requires GP to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. During the most recent compliance inspection, no odorous emissions were observed from any of the permitted emission sources. GP has not received any complaints from neighbors about odors from the facility.

VIII. New Source Performance Standards (NSPS)

No NSPS are applicable to the facility. This permit renewal does not affect this status.

IX. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

Because Northampton County has been designated as attainment or unclassifiable for all criteria pollutants, NSR is not applicable. PSD regulations are not applicable to the GP facility at this time. This permit renewal does not affect this status.

X. Risk Management Program (112(r))

NCAC 02D .2100, Risk Management Program (RMP) applies to any facility with more than a threshold quantity of a regulated substance listed in 40 CFR 68.130, with certain exceptions. Because the GP facility stores ammonia and formaldehyde in quantities above their established thresholds, it is subject to the Chemical Accident Prevention Provisions in 40 CFR Part 68, which implement the requirements of Section 112(r) of the Clean Air Act. GP Resins has a registered RMP (submitted to the U.S. EPA December 6, 2013 with an anniversary date of December 6, 2018) for the following 112(r) regulated toxic substances:

Covered Process	Chemical	Maximum Intended Quantity	Threshold Quantity
Resin Manufacturing	Ammonia (concentration ≥ 20%	23,000 lbs	20,000 lbs
	Formaldehyde (solution)	200,000 lbs	15,000 lbs
Formaldehyde Manufacturing/Storage	Formaldehyde (solution)	990,000 lbs	15,000 lbs

This permit renewal does not affect this status.

XI. Compliance Assurance Monitoring (CAM) 40 CFR Part 64

15A NCAC 02D .0614, Compliance Assurance Monitoring implements the requirements of 40 CFR Part 64. The rule applies to a pollutant specific unit at a facility required to obtain a permit that meets the following three conditions:

- the unit is subject to an emission limitation or standard for the applicable regulated pollutant, or surrogate of said pollutant (unless exempt under paragraph (b) of the rule)
- the unit uses a control device to achieve compliance with any such emission limitation or standard, and
- the unit has potential pre-control potential emissions that would qualify the source as a major source (i.e., equal to or greater than 100 tons per year of any criteria pollutant, 10 tons per year of a single HAP, or 25 tons per year of multiple HAPs).

The existing spray dry resin production process (ES-5) is subject to the CAM requirements because it:

- Is subject to an emission limitation or standard for a regulated pollutant (PM_{10}), that is not exempt under §64.2(b)(1) (2);

- uses a control device (i.e., bag filter CD-5A) to comply with that emission limitation or standard; and
- has before-control potential PM_{10} emissions greater than 100 tons per year and thus is considered a major source for Title V. As stated in GP's renewal application, the before-control and after-control potential PM_{10} emission rates are 1,139 tons per year and 22.5 tons per year, respectively.

The rule requires compliance with 40 CFR §64.3, §64.4, §64.5, §64.7, and §64.9, as discussed below.

Monitoring [§64.3, §64.6 and §64.7]:

- ***Indicators*:** The CAM plan requires monitoring of the bag filter differential pressure as the indicator of its performance.
- ***Frequency*:** GP monitors differential pressure across the bag filter hourly.
- ***Bypass*:** The spray dry resin production process is configured such that the bag filter cannot be bypassed. Therefore, monitoring of indicators of bypass described in §64.3(a)(2) does not apply to this emission source.
- ***Indicator Range*:** The differential pressure across the bag filter ranges from 0 inches of water column (with new bags) to 8 inches of water column when operating properly. An excursion is defined as a differential pressure across the filter in excess of 8 inches of water column and triggers inspection, corrective action and recordkeeping requirements. During the August 24, 2017 compliance inspection, the differential pressure observed was 3.9 inches.
- ***QA/QC Practices*:** GP conducts monthly external inspections (for leaks) and annual internal inspections (for structural integrity) of bag filter CD-5A and maintains the differential pressure gauge according to the manufacturer's recommendations.

Recordkeeping [§64.9(b)]: GP maintains records of the differential pressure drop across bag filter CD-5A, the external and internal inspections of the bag filter, and any corrective actions taken.

Reporting [§64.9(a)]: GP submits semiannual summary reports of the filter monitoring to NC DAQ.

Quality Improvement Plan (QIP) [§64.8]: A QIP is required following the observation of six or more excursions during a consecutive six-month period. To date, this requirement has not been required.

Continued compliance is expected.

XII. Compliance Status

On July 31, 2013, NC DAQ issued GP a Notice of Deficiency for missing February 2013 monthly ductwork inspections for the two extender silo bin vents. GP had informed NC DAQ of the missing inspections by a letter dated June 11, 2013. which outlined actions taken to ensure future compliance with monitoring and recordkeeping requirements. No additional compliance issues have arisen since the last permit renewal.

The facility was last inspected on August 24, 2017 by Will Wike of the Raleigh Regional Office. The company appeared to be in compliance with all applicable requirements at that time.

XIII. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A

NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. Virginia is an affected state; there is no affected local program.

XIV. Other Regulatory Considerations

No P.E. seal was required and provided in Permit Application No. 6600016.17A.

A zoning consistency determination was not required for this permit application.

No permit fee of was required for this permit renewal.

XV. Recommendations

The permit application for Georgia-Pacific Chemicals, LLC - Conway located in Conway, Northampton County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 04243T25.